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THE CAUSATION OF TYPHOID FEVER.[1]

BY GEORGE E. WARING, JR., NEWPORT, R. I.

THE long-continued and somewhat thorough investigations of the ultimate methods of the causation of this disease have failed of a scientifically accurate result. The question whether typhoid fever always springs from the presence of specific poison produced by a parent case of the disease, or whether it may, under certain circumstances, arise *de novo*, is still in doubt. It is hardly worth while, in a paper prepared for the use of medical practitioners, to restate the facts and observations which support one or the other of these theories; this would lead only to the inconclusive result which has always thus far attended the discussion.

By far the majority seem to sustain the opinion of Dr. Budd and his followers, that the disease can originate only from the presence of a specific poison produced by a previously existing case. It should be remembered, however, that as most physiological investigators have confined their observations to dense communities, where the disease has prevailed, their observations are more or less clouded by the probability that previous cases have had an influence upon those under consideration.

Although their number is far smaller, other investigators have devoted themselves entirely to very sparsely settled districts, whose isolated families have so little communication with the rest of the world and with each other that it is easy to determine the exact circumstances of contact. The occurrence of typhoid fever in a house standing miles away from all others, where it is rare that any member of the family goes from home, and where a visitor as rarely comes, furnishes strong presumptive evidence of the correctness of Dr. Murchison's theory of a possible *de novo* origin.

To show the testimony upon which opinions are based, we may cite the instances described in various reports of the Massachusetts State Board of Health. In that State the annual deaths from this disease are about one in one thousand, and it is estimated that one tenth of the

[1] Prize Essay. 1878. Rhode Island Medical Society.

cases are fatal; so that about one per cent. of the population are attacked by the disease. There, as elsewhere, typhoid is peculiarly a disease of the country rather than of the town. The observations of ten years show that among a population of 1,044,294 persons, living in large towns, the typhoid death-rate was 0.755; and that among a population of 213,468 persons, living in small towns, the rate was 1.189.

The case is reported of a house in Hadley, built by a clergyman, where a well existed in the cellar into which foul air from the sink drain had access. Vegetables were kept in the cellar; the windows were never taken out; there was no escape for the foul, damp air; and water stood in drops upon the ceiling and walls.

"After a few months' residence in the house the minister's wife died, of fever, so far as I can learn. He soon married again, and within one year of the death of the first wife the second died, from, as I understand, the same disease. The children were also sick. He lived in the house about two years. The next occupant was a man named B——. His wife was desperately sick. A physician then took the house. He married, and his wife died of the fever. Another physician was the next tenant, and he, within a few months, came near dying of erysipelas. All this while matters had remained as before described with reference to ventilation. A school-teacher then rented the house, and tore up the closed box, but did not cover the well. This was about eight years after building the house. The sickness and fatality were so marked that the property became unsalable. When last sold every sort of prediction was made with reference to the risks of occupancy, but, by a thorough attention to sanitary conditions, no such risks have been encountered."

The case of the Maplewood school, at Pittsfield, fully and thoroughly reported upon by Drs. Palmer, Ford, and Earle, is too well known to be detailed here. Of seventy-four resident pupils, sixty-six had illness of some sort; fifty-one had well-marked typhoid fever. Of the whole family of one hundred and twelve persons, fifty-six had typhoid fever, and sixteen of these died. The cellar was used for storing vegetables; the privy vault communicated with the main hall of the building; the kitchen drain discharged near by; the privy vaults were filled nearly to the surface; and, in the summer season, the house was pervaded by foul odors. The school was dismissed; the sanitary condition of the establishment was thoroughly improved, and the institution became and has remained free from the disease.

In a boys' school in Pittsfield the well stood under the wash-house, and was fouled by its leaking drain. Coinciding with this condition there was a serious outbreak of typhoid. The well being closed, and the water supply being taken from another source, the fever subsided. In another instance, men engaged in draining a meadow drank from a

well supplied only from the water of the meadow, and were attacked under circumstances which seemed to connect the disease with the drinking of this water. In another an attack followed the drinking of water from a sluggish brook fouled by town sewage.

Evidence is given in these reports of outbreaks which were traceable to the tainting of an air-box, which supplied a furnace, by exhalation from the house drain; by the draining of a mill-pond which contained *no* sewage matters; and by the proximity of a stagnant ditch which had no obvious source of excrementitious fouling.

In Sutton an outbreak of typhoid coincided with the flow of barn-yard waste into a well three rods distant on the occasion of a sudden thaw.

The correspondent from the town of Oxford says: "So firm is my belief of this [referring to exhalations from foul drains, cellars, privies, and pig-sties] as a cause of typhoid fever that when I meet with a case of typhoid fever, not readily traceable to some of these causes, I infer that the truth has not been told me, or that my perceptive faculties have been at fault."

At Martha's Vineyard and in Newton there seems to be evidence that the prevalence of typhoid is effected by geological conditions, clay subsoil or underlying rock covered with rich soil favoring the disease. The very local character of most epidemics indicates defects of soil rather than of air. A physician in Pittsfield reports four cases and one death occurring among charcoal burners occupying two houses standing high up on the mountain side, and supplied with pure spring water. The first case had been exposed to no other than local agencies. The house was built into the hill-side, and on its upper side there was a foul pool of house-slops standing several feet higher than the level of the floor. This seemed to have caused the first attack of the disease, which subsequently extended to the other house, there being frequent communication between the two. The outbreak took place in August, when the windows overlooking this foul water were probably kept open. At Coltsville, slops were thrown out near the well, and a foul barn-yard pool stood near it. The condition of the well was the only traceable cause of the disease which followed. In another case the fever occurred after the use of water from a well near a barn-yard. Indeed, in all of the records of typhoid investigations, here and abroad, there appear innumerable instances where drinking-water wells were contaminated by infiltrations from manure heaps, swill, slops, cesspools, and privy vaults. In other cases, where there has been no conspicuous contamination of the drinking-water, outbreaks of the disease have coincided with the emptying of mill-ponds for the purpose of repairing the dams. Again, the infection of well-water by the infiltration of soap-suds in which the clothing of fever patients had been washed seems to have caused an outbreak.

One of the most striking examples of investigation of the ætiology of typhoid fever occurring in very sparsely settled districts is to be found in a paper by Dr. W. H. Bramblett, of Newberne, Va., published in the *Virginia Medical Monthly*, May, 1877, page 109. Dr. Bramblett practices along both sides of New River, which flows through a mountainous country broken into numerous valleys and gorges. There are no ponds or marshes whatever, and the elevation is from twenty-two hundred to twenty-five hundred feet above the sea. His investigations lead him to the belief that typhoid fever may originate without the least possible connection with a previous case. He cites seventeen cases, which had seven distinct starting-points, entirely unconnected with one another and with any other traceable source of contagium. The drinking-water seems to have been always pure, mountain-spring water; the privies appear to have been well placed with respect to the house; and, so far as can be gathered from Dr. Bramblett's report, there was an entire absence of all of the conditions which usually attend outbreaks of this disease. The description of symptoms indicates that the cases were all true typhoid fever. Among his conclusions Dr. Bramblett suggests the following: that "typhoid fever often originates spontaneously," or that "the contagium to which the disease owes its specific character originates *de novo*."

In estimating the value of this report it is to be considered that the reporter believes typhoid fever to be directly contagious, — a conclusion diametrically opposed to the recorded observations of those who have had experience in great fever hospitals.

While the voluminous records of investigation as to the origin of typhoid fever fail utterly to decide the question between those who do and those who do not believe that it can originate *de novo*, and while they have in doubt the question between "living germ" and "specific poison," — while, in other words, they leave the purely scientific problem still unsolved, — they are full of instruction as to the causation of the disease as we almost uniformly know it in practice. From the point of view of the medical practitioner, although much is still to be learned, we already know enough for the complete stamping out of typhoid fever as an epidemic. Sporadic cases may still occur, but if the physician knows what he may now learn, if he is energetic in the performance of his duty, and if he is sustained by private opinion and by public authority, he may, in every instance, prevent the extension of the disease to a second subject. Practically, so far as the health of the public is concerned, we may be said to possess already very nearly all the knowledge that we need.

There is no longer any dispute concerning the chief vehicles by which the specific contagium of typhoid fever is conveyed. These are the air that we breathe and the liquids that we drink. Perhaps we

may narrow the question still more, and ascribe to the action of the air only the indirect conveyance of the contagium to the stomach; for there are indications that as the contagium of typhoid fever proceeds from disorders of the alimentary canal, so it is only the surfaces of the alimentary canal which are susceptible to its attack.

The poison of the air may be direct or indirect. That is, it may be due to the exhalations of decomposing matters in dung-heaps, pig-sties, privy vaults, cellars, cess-pools, drains, and sewers; or it may be due (according to Pettenkofer) to the development of the poison deep in the ground, and its escape in an active condition in ground exhalations. The water, milk, etc., which we drink may be contaminated by the absorption of foul odors from air with which they are in contact, or by the direct admixture of organic matters bearing the elements of infection. There is such a multitude of possible sources and channels by which the infection may be brought to us that it is often almost impossible, in first cases, to determine which has been actually in operation; but the original case being established, it becomes comparatively easy to trace the channel of its influence in the production of further cases.

It is with these well-known and clearly traceable agencies of development and communication, by which the initial causation is favored and the extension of the disease insured, that the practicing physician and the health officer have chiefly to do. If it is true that prevention is better than cure, then it should be the first care of the physician to insure the absence of all conditions which do or may favor the origin and spread of the disease.

Typhoid fever has in this connection an especial importance, not only as being a wide-spread scourge of almost unequaled magnitude, but as being the typical "pythogenic" disease. Its development and extension are due to conditions which equally promote the spread of diphtheria, diarrhœa, dysentery, cerebro-spinal meningitis, scarlet fever, and the long list of minor ailments which, without destroying life, make living almost worthless, — diseases which undermine happiness, sap the springs of energy, and overwhelm the patient with listlessness and *ennui*. It is the best known and the most widely spread of the long list of preventable diseases; and as the circumstances which favor the extension and aggravate the character of the whole of these are those which have the strongest influence over itself, so by removing the conditions which foster them we shall do much to restrict its contagion.

All the learning of the ages has taught us no better formula to express a perfect sanitary environment than the old one of Hippocrates: "Pure air, pure water, and a pure soil."

If we would turn typhoid from our doors, and literally stamp it out as an epidemic, we need only to insure this condition in its integrity. We may still import single cases from less cleanly neighborhoods, but it

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will be our fault if we permit it to attack even one of our own community.

Turning now to the practical bearings of the question, we may safely assume that typhoid fever is not conveyed by simple personal contact with the diseased body. According to Dr. Murchison, in the London Fever Hospital, where two thousand five hundred and six cases of typhoid fever were treated in fourteen and one half years, there occurred during the whole time only eight cases which originated in the hospital. Other instances are almost as striking, and in some cases the disease originated in isolated wards, such as small-pox wards, where personal contact was impossible, but where a conveyance of the infection by drains, air channels, etc., was clearly detected.

It may doubtless be assumed that the agency in the spreading of the disease from an original case exists entirely in the dejections from the bowels. Dr. Budd thinks that the surface of the bowels throws off the specific poison, as the surface of the skin throws off the poison of other diseases. The infecting material, whatever may be its character, is believed never to be active until it has undergone a certain development in connection with subsequent fermentation or decomposition of the dejections. Its vitality is very great, and seems little dependent upon circumstances other than the effect of a very high temperature. Dr. J. M. Lazzell, in the Transactions of the Medical Society of West Virginia for 1877, publishes a paper on the contagiousness of typhoid fever, in which he describes an outbreak in the family of one Thomas, which in time produced such terror that no nurse or washer-woman could be induced to come to the house. The bed linen and clothing, soiled with typhoid dejections, were boxed up and packed away. Three months after the disease had disappeared from the country, and when the general health was good, a girl came from six miles distant to do the house-work. Among other things she washed this boxed-up clothing. In ten or twelve days she was taken sick, and went home. Dr. Lazzell was called to her five days later, and recognized the same form of typhoid fever that had occurred in the Thomas family. Eleven members of her household were exposed, and eight of them took the disease. It did not attack a single person not so exposed.

The evidence is copious and conclusive that typhoid infection is transmitted often to a long distance, and after the lapse of considerable time, by running water to which the dejections have obtained access.

In Wicken Bonant the stools of a typhoid patient were thrown into a vault which stood near to the edge of a brook thirty-five yards above the parish well. The water-course carried the infection to the well. Forty-five cases occurred: five of them among one hundred and eighteen persons who did not drink water from the well, and the remaining forty among eighty-eight persons who had no other source of water

supply. That is to say, of those who used the water from the parish well forty-six per cent. were attacked, and among those obtaining water from other sources less than three per cent. were attacked. This statement is taken from the twelfth report of the medical officer of the privy council of England.

I have previously cited the case of the outbreak at Over Darwen, in England, as follows: —

"There has recently been an investigation into the origin of an outbreak of "filth fever" in Over Darwen, England, the origin of which for a long time eluded the careful search of the authorities. It was finally worked out by a sanitary officer sent from London. The first case was an imported one, occurring in a house at a considerable distance from the town. The patient had contracted the disease, came home, and died with it. On first inquiry it was stated that the town derived its water supply from a distance, and that the water was brought by covered channels, and could not possibly have been polluted by the excreta from this case. Further examination showed that the drain of the closet into which the excreta of this patient were passed emptied itself through channels used for the irrigation of a neighboring field. The water-main of the town passed through this field, and, although special precautions had been taken to prevent any infiltration of sewage into the main, it was found that the concrete had sprung a leak and allowed the contents of the drain to be sucked freely into the water-pipe. The poison was regularly thrown down the drain, and as regularly passed into the water-main of the town. This outbreak had a ferocity that attracted universal attention; within a very short period two thousand and thirty-five people were attacked, and one hundred and four died."

(*To be concluded.*)

AN OUTBREAK OF DIPHTHERIA AND ERYSIPELAS IN A SMALL HOSPITAL.[1]

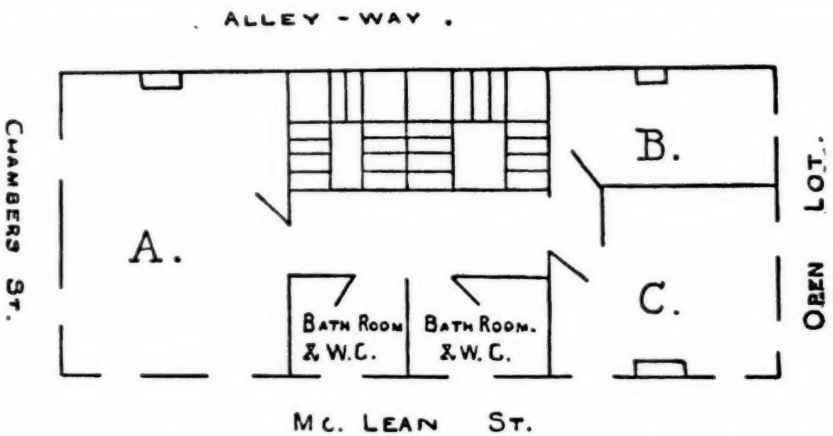
BY F. C. SHATTUCK, M. D.

The House of the Good Samaritan occupies two brick houses, formerly known as "Eaton's Folly," on the southwest corner of McLean and Chambers streets, has accommodation for twenty-seven patients, and has been in use now seventeen years as a hospital. A large, high ward in the third story, repapered, painted, and whitewashed two years ago, with two windows on McLean Street and a like number on Chambers Street, and in which a soft-coal fire is kept burning all day in an open stove, contains ten beds, most of which are for orthopædic cases

[1] Read before the Boston Society for Medical Observation in April.

under the care of Dr. Buckminster Brown. Neither pains nor expense are spared to insure good ventilation and pure air in all the wards, in every one of which, I may add, is an open fire of soft coal kept up almost constantly during the larger part of the year; and, if the senses are in any way competent to judge of the purity of air, that of the hospital is preëminently good and sweet.

On my visit on the morning of February 12, 1878, as it was thought he might not come that day, I was asked to look at one of Dr. Brown's



patients, and found the child had passed a restless night, refused its breakfast, and complained of sore throat.

Case I. John R., four years old, had been three months in hospital under treatment for hip disease, and was a miserable-looking, very scrofulous child. His skin was warmer than natural to the touch, his pulse was accelerated, the fauces were generally red and swollen, and there was a white patch the size of a split pea on the left tonsil. No enlargement of the glands in the neck, no vomiting, no eruption on the skin. I ordered chlorate of potash and ice, and reported that I considered it a case of simple sore throat, and that there was consequently no objection to admitting a child to fill a vacancy in the ward the same day. Dr. Brown, who had come in before I left the house, also examined the case, and agreed with me entirely as to its probable nature. The next morning I was informed that the child had been pretty comfortable, but on examining the throat found that the white patch was somewhat larger, though still confined to the left tonsil, and that when its edge was detached by gentle manipulation with the handle of the spoon a bleeding surface was laid bare beneath. The skin of the upper lip was somewhat irritated, and some yellowish froth appeared at the nostrils during the examination of the throat. During the two years that I was one of the dispensary district physicians, I may state in passing, my experience with diphtheria was fairly large, and I was led to attach

considerable importance to this symptom of an acrid and thin purulent or purulent and sanguinolent discharge from the nostrils, in cases in which the condition of the throat alone did not seem to me to warrant a positive diagnosis of diphtheria. Such a discharge never occurs, as far as I know, in cases of catarrhal or of follicular angina, and does occur in a pretty large number of cases of diphtheria. It indicates, of course, merely the involvement of the posterior nares in the process.

Our case being clearly now one of diphtheria I advised sending it away, as the house has no proper facilities for isolation. Thanks to the kind promptitude of Dr. Cowles the child was taken to the City Hospital the same afternoon, but died there six days later from exhaustion.

A day or two after this the city Board of Health sent their best inspector at our request, and after a very thorough examination he pronounced the house-drains and soil-pipes in perfect order, and some ten days later the examination was repeated with a like result.

Case II. February 17th I was asked to look at a little girl of five years, under treatment for caries of the dorsal spine, and three months in the hospital. She had had a restless night, vomited in the morning, and complained of her throat, which was found on examination to be swollen and inflamed, and to present a small white patch on one tonsil. Inasmuch as the atmosphere of the house was free from any contamination with sewer gases, I still entertained the hope that it might not prove necessary to incur the inconvenience and expense of breaking up the ward, and this case also was removed the same day to the City Hospital. We shall return to this child later. The bedsteads and mattresses occupied by these two children were each sent down into the yard as soon as the cases left the ward, and were exposed to the sun and wind for several days and nights, washed, and not returned to the ward. After the occurrence of the second case those of the children who were not confined to bed passed the whole day-time in another ward on the same floor which was occupied only by grown people, but slept in their own ward, and this was aired daily for an hour in the morning and another hour in the afternoon by opening all the windows wide and keeping up a blazing fire, the children who were in bed being carefully covered up. The weather was fortunately so favorable at the time that this could be carried out without undue exposure.

Case III. A little girl of six years, with hip disease, was the child who was admitted with my sanction February 12th, the day of the appearance of the first symptoms in the first case. February 21st, four days after the outbreak of the disease in Case II., I was told that she had had a restless night and complained of her throat, but had not vomited, and had taken her breakfast much as usual. The throat was found on inspection to be moderately inflamed, but entirely free from false

membranes. Temperature, A. M., 100.2° F.; P. M., 101° F. The previous history of the ward rendered it highly probable that this case also would prove to be one of diphtheria, but there was at that time absolutely nothing except the outward circumstances to distinguish it from the simplest case of common sore throat, and the circumstances attending the child's admission were such as to make it seem best to give it the benefit of the doubt and keep it under observation. The other children had been already as much exposed as this child, and the well-known fact was borne in mind that those who are exposed to such infectious diseases as scarlatina, diphtheria, and erysipelas sometimes become the subjects of sore throat, which, though it can in no way be distinguished anatomically from simple pharyngitis, seems to be connected in some way directly with the poison. The next day there was marked swelling under the angle of the jaw, especially on the right side; the swelling inside the throat had increased somewhat, and the right tonsil was the seat of a delicate vertical line of false membrane. Temperature, A. M., 99° F.; P. M., 102° F. A consultation with Dr. Brown could not be arranged on that day, but was held the next, — February 23d, — and it was then agreed that we should isolate the infected ward as much as possible, and shut up the three children who had been all along in bed, and consequently were more likely to contract or to spread the disease, with the case which had already broken out. It was arranged that these four children should have separate nurses; a sheet kept constantly moist with a solution of carbolic acid was hung over the outside of the door-way, and such other measures taken as would tend to prevent the spread of the disease to other parts of the house, and disinfect the air of the foul ward itself as far as possible. The patch of false membrane showed no increase in size, the temperature was lower, and the general condition of the child so good that no medicine was deemed necessary other than Wyeth's compressed tablets of chlorate of potash every two hours. During the next ten days the temperature ranged between 99° F. and 100.6° F., and by March 2d was normal both A. M. and P. M., while the throat was quite well except for slight redness and relaxation. No paralysis or other sequel of the disease has occurred.

Cases IV. and V. Of the three other children in the ward two suffered from mild sore throat with slight constitutional disturbance, but the third escaped altogether. The first began to complain March 2d, the second March 11th, and both recovered within a week from those dates respectively. Up to this date there has been no new case of diphtheria.

Case VI. We must now return to Case II., sent, as will be remembered, to the City Hospital. The condition of the child was very critical for some days, but it finally pulled through, and March 14th was sent back to us, greatly debilitated, of course, from the severe attack

which it had undergone and its previous constitutional affection. There was also some paralysis of the soft palate, as was evidenced by regurgitation of food through the nose; but this rapidly passed off. It was put into ward B, and two or three days later — the exact date has unfortunately not been preserved — presented decided redness and swelling of the right upper eyelid and slight injection of the conjunctiva, but without any apparent constitutional disturbance. The affection passed away in four or five days under very simple treatment, and was so trifling an affair that I attached no importance to it at the time, nor should I have thought of it again, or classed it as erysipelas, were it not for the light of subsequent events. The child died, March 30th, of congestion of the lungs, Dr. Brown tells me.

Case VII. March 18th one of the two children in the foul ward who had had only a mild sore throat was found to have redness and swelling of the right upper eyelid, very similar to that of the foregoing case. By the second or third day there was moderate purulent discharge from the conjunctiva, and the affection passed away within a week.

Case VIII. The ward marked B on the plan was at this time occupied by the child from the City Hospital and three women, and, having only one window, is the least desirable ward in the house. March 20th I found that one of the women, a widow of fifty-seven, but practically much older than that, the subject of chronic lung disease, with a history of hemiplegia, and nearly bedridden, had now very great swelling of the left upper eyelid, and moderate swelling and redness of the lower lid and integument as far as the lower border of the malar eminence. The lids were completely closed, and the upper lid greatly ecchymosed. The peripheral redness was not very marked, and the appearance of the part was strongly suggestive of a blow or fall. Her pulse and skin were natural; she had had no chill as far as could be ascertained, nor had she sustained any injury. The nurse stated that she had observed some slight redness about the eye the day before, but the patient's bed was in the corner of the room farthest removed from the window, and I had noticed nothing. There was no pain about the eye, but very severe neuralgic pains in the legs were complained of; and as no relief had been obtained from several doses of an anodyne I gave her a hypodermic injection of morph. sulph. gr. $\frac{1}{8}$, and atropiæ sulph. gr. $\frac{1}{60}$, which was followed by six hours of sound sleep.

March 21st. A pretty comfortable night. Vomited once early in the morning. Commencing blush about the right eye. All arrangements had been made for vacating and renovating the children's ward on this day, so this patient and the other two women were moved into ward C, to make room for the children. I will not detain the society with a detailed account of the further progress of the case. During the next few days a slough formed on the left upper eyelid, extending

round the inner commissure of the lids, and pain and stiffness in the neck were complained of. On the 25th she had a sharp chill of fifteen minutes' duration, after which the temperature was 103.6°; swallowing became difficult, and finally impossible; stupor came on; swelling and redness of the right elbow and wrist, with pain on motion, were noted; and March 28th she died of exhaustion.

Case IX. March 26th a woman with phthisis of four years' standing, who had occupied ward B, had a chill toward evening, and the next morning an erysipelatous blush on the tip of the nose. The same morning the other patients in the ward were provided for out of the house, the two cases of erysipelas alone being retained. The disease invaded the upper lip, the left cheek and ear, and the left side of the forehead. April 3d she passed out of my care into that of Dr. F. E. Oliver, who informs me that she is now well, and that no other case has appeared. There has been no trouble on the lower floors of the house.

To recapitulate, we have three cases of unquestionable diphtheria; two of sore throat, probably due to a mild dose of the poison; and four of erysipelas, all occurring in persons already debilitated by grave constitutional disease. Of the cases of diphtheria two were fatal, one directly, the other indirectly; of the cases of erysipelas, one was fatal.

As to the origin of this outbreak of zymotic disease, we remain entirely in the dark. Sewage can be pretty confidently excluded, two careful examinations at an interval of ten days having failed to reveal any leak. Did the disease come to the first case through the window, or was it brought to it by some visitor? No cases of diphtheria in the immediate neighborhood of the house were reported to the Board of Health between February 1st and April 1st, and it has been impossible to trace it to any visitor, — indeed, I believe that it is still an open question whether diphtheria can be carried by a third party.

To turn to the erysipelas. On inquiry, I find that while Case II. was at the City Hospital a severe case of erysipelas was in a small room on the same floor, but on the other side of a wide passage, and several doors farther along, though the nurses were the same. It was in this child that erysipelas first appeared on the scene, and that within two or three days of leaving the institution; the child was also put on its return to us into a ward (B) which had no obvious communication with the diphtheria ward, and which up to that time had been perfectly healthy, though it had been in use for a number of years for purely medical cases. The same paper had been on the walls for eight or nine years, but whitewash had been several times freely applied to the ceiling, and the painted woodwork frequently washed during that time. The third and fourth cases of erysipelas were in patients who also occupied this ward, but the second case was in the diphtheria ward, and followed the first within twenty-four to forty-eight hours. This fact

inclines me to think that the means which were taken to isolate the diphtheria ward from the rest of the house failed in their object; or in other words, it seems more probable that of four cases of erysipelas, which followed one another in quick succession, all originated in the house; than that one was imported, giving rise to two others, and that the fourth (second in point of time) originated in the house almost simultaneously. Absolute isolation is attended with great practical difficulties under the most favorable circumstances, but is more difficult of attainment in a small hospital than in a large one, or than in a moderately convenient private house. In the former, special provision is made for a necessity which is frequently arising; and in the latter case, the members of the household who are well are more easily provided for elsewhere than are the inmates of a home for more or less chronic cases of disease.

The questions, What are the real nature and causation of diphtheria, scarlatina, erysipelas, typhoid fever, certain cases of pneumonia, etc.? and How far and in what way are they connected with one another? have been brought very prominently before the medical and general public of late years, and promise to remain prominent for some time to come. These affections have all been included by late authorities on sanitary science under the term "filth diseases," and that filth is a predisposing cause of them there is but little reason to doubt. May it not, however, be considered a predisposing cause of all disease? The fact that typhoid fever may be propagated by means of air and water which are contaminated by the dejections of typhoid fever cases seems to be very clearly established, and we have more evidence in favor of a *direct* connection between sewage contamination and typhoid fever than between it and the other diseases of the filth class. It may be, however, that we at present overrate rather than underrate the intimacy of even this connection. The forthcoming Annual Report of the State Board of Health will show that the town of Gloucester, which contains scarcely any pure drinking water, is no more subject to typhoid fever than neighboring towns with a pure water supply. The city Board of Health finds defective drains in a large proportion of the houses reported to it as containing cases of diphtheria; but before we can establish a direct connection between the drainage and the disease we must know the percentage of all houses, healthy as well as unhealthy, which have neither defective drains nor defective traps. A systematic investigation of this point would, I am convinced, tend materially to increase and define our knowledge of this highly complex and important subject of filth disease, so called.

Note. April 15th the children were moved back into ward A, which had meantime been thoroughly renovated, and April 26th that child which alone of those shut up with the diphtheria case had escaped

even sore throat was taken down with diphtheria and sent to the City Hospital. May 23d she was sent back to the Samaritan, May 29th broke out with measles, a number of cases of which had been at the City Hospital, and the same day was sent thither a second time, but not before the poison had been communicated to several others of the children, as was seen in due time. No new patients were admitted to ward A until May 18th, and no new case of diphtheria has appeared up to date (July 15th). There is room for speculation as to the origin of this last case of diphtheria, but my *space* is limited. A careful comparison of dates and circumstances suggests the bare *possibility* that the disease may remain latent for a period of five to six weeks.

RECENT PROGRESS IN GYNÆCOLOGY.

BY WILLIAM H. BAKER, M. D.

Pneumatic Self-Replacement of the Uterus.[1] — Dr. Henry F. Campbell, after considering the early history of the "knee-breast," "all-fours," or "knee-elbow" position, as it was variously designated as early as the middle of the seventeenth century, shows that the writers of that period did not understand the importance of the introduction of air into the vagina for the effectual operation of inverted gravity. After giving Dr. Sims credit not only for using the genu-pectoral position in his early operations on the uterus and vagina, but for thoroughly understanding the necessity of inverted gravity and atmospheric pressure to the success of these operations, the writer ascribes credit in the use of this position in the replacement of the uterus to many of the more recent gynæcologists, giving originality to none. He then states three important conditions or powerful influences brought to bear upon the displaced uterus by the above-mentioned position, which, with the aid of the diagrams, cannot fail to be understood. These influences, as described, are, reversal of gravity, draft of the viscera, and external atmospheric pressure.

The author then gives in detail the directions for placing the patien in the genu-pectoral position, as follows: "Let the patient loosen all strings and fastenings of her dress and waist, and place herself on the bed on her knees, bending the body forward till the head and thorax are brought down to the same plane as that on which the knees are resting, namely, the surface of the bed. The face may be turned to one side, resting in the two hands, while the elbows are spread out widely from the sides. The knees are to be separated from five to ten inches. The thighs must be perpendicular to the surface of the bed. She must not arch the spine upwards, for this brings into forcible action the ab-

[1] American Gynæcological Society's Transactions, 1876, page 198.

dominal muscles, which should be perfectly relaxed, with the spine curved downwards, as we see in sway-backed animals. With these peculiarities fully impressed upon her, she is to breathe easily, and relax the muscles of the abdomen." Dr. Campbell, like some others, has found that by the observance of the above measures very many cases of displaced uteri may be readily replaced even by the patient herself; and in the cases where practicable it seems to us to possess the superior advantages of simplicity, effectiveness, and safety.

Artificial Ureter.[1] — After ovariotomy had been performed by Nussbaum on a patient forty-seven years of age, the right ureter having been cut in removing a part of the tumor which had become adherent to it, the urine from the right kidney was discharged by a fistula through the abdominal walls. The operation consisted in dilating the sinus in the parietes, passing the finger down to the right of the uterus, where a cavity the size of a pigeon's egg was found filled with urine, into which the right ureter opened. The urethra was then rapidly dilated, and the finger introduced into the bladder; but as the entrance of the right ureter could not be detected, a trocar was thrust through the wall of the bladder into the small cavity mentioned above, and this track was kept open by means of drainage tubes, which, however, were soon discarded, as they continually worked out of place. The passage remained patent, notwithstanding, while the fistula in the abdominal walls closed after an application of the cautery, and a complete cure was thus effected.

Abnormal Softness of the Nulliparous Uterus as a Factor in the Ætiology of Uterine Distortions, and as a Cause of Impairment of Power of Locomotion.[2] — At the forty-fifth annual meeting of the British Medical Association, 1877, Dr. Graily Hewitt presented a paper on the above subject, in which he claimed to have directed attention to the connection between marked distortions of the uterus and impaired locomotive power eight years previously, under the term "uterine lameness." Farther observations had led him to the conclusion that this softening was due to an impairment of the nutritive process in the uterus itself. Twelve cases were cited in which uterine distortion dependent on such softening occasioned a diminution of the locomotive power. In the cases mentioned the interference with nutrition was extreme, and the general strength having been regained by proper remedies the more firm character of the uterine structure was restored in a commensurate degree. From a careful study of these cases it was proved that the difficulty in locomotion arose from the fact that, in the erect position, the alteration in the shape of the uterus became intensified. Dr. Hewitt thought the great cause of this mal-nutrition of the

[1] Baurescher Aertzl. Intell.-Blatt, 1876, No. 7, page 63.

[2] British Medical Journal, August 25, 1877, page 258.

uterus in young women was insufficient attention to the dietary during the growing age. The uterus being thus softened would be easily flexed by physical exertion of various kinds.

The summary of Dr. Hewitt's views may be given as follows: —

(1.) The discomfort in walking, or that produced by the vertical position, is due to an alteration in the shape of the uterus.

(2.) The alteration in the shape of the uterus may be quite temporary, though by a process of repetition it tends to become permanent.

(3.) A softened condition of the uterine tissues renders the organ very liable to such alterations of shape as will give rise to uncomfortable sensations, or even to acute pain.

(4.) This softened state of the uterus is usually associated with general debility of the whole system.

(5.) The softening is essentially an indication of mal-nutrition of the uterus.

The treatment advised consisted, in the first place, of strengthening the system at large by nourishment; and, in the second place, of maintaining the uterus in its proper position so long as the condition of softness continued. This latter object might sometimes be gained by the horizontal position; at other times, when of long standing, the use of vaginal pessaries becomes necessary.

From a number of cases of this class which we have had under observation we have arrived at conclusions which would quite agree with those of Dr. Hewitt; and realizing the increased amount of debility which, in some cases, is induced by local treatment, such as the adjustment of a uterine support, a question arises which is of the greatest importance to the patient, namely: whether the strength is sufficient to warrant our making the increased demand upon it required for the proper application of a pessary, in order that the long train of evils consequent upon distortions of the uterus may be averted or relieved, and thus a cause of keeping up such condition of nervous debility already established be removed; or whether such a demand upon the general strength will be too great, or out of proportion to the amount of immediate benefit to be derived from the mechanical appliance.

THE NEW YORK ACADEMY OF MEDICINE.

At a recent meeting of the New York Academy of Medicine, Prof. T. Gaillard Thomas read a valuable paper on The Best Method of controlling the High Temperature occurring after Ovariotomy. After alluding to the wonderful service which clinical thermometry had rendered to modern medical science, he presented a short sketch of its past history, during the course of which he gave full credit to Curry for his remarkable labors in this direction in the last century. But notwithstanding the great advances which had been

made in consequence of the now general use of the thermometer by medical men, there was still considerable difference of opinion among the profession as to how a marked rise in temperature was to be combated when it had been detected by the thermometer. Many observers were in the habit of lauding the virtues of quinine and the various combinations of salicylic acid in this connection, but for his own part he considered them far from reliable, and agreed with many of the most enlightened therapeutists of the present day that in no manner could high temperatures be so effectually reduced as by refrigeration of the surface by water a number of degrees cooler than the body. The reason that this means had not been more universally adopted may be found in the great difficulties encountered in carrying it into practice.

Dr. Thomas spoke at some length on the bad effects produced by high temperature continued for any length of time, and also of the rapid changes produced in the system when the degree of heat was excessive, as in sunstroke, in which the blood quickly becomes acid and abounds in urea and in white corpuscles. After ovariotomy, he continued, the sequelæ most to be dreaded were peritonitis and septicæmia. In both of these affections there was a rapid rise of temperature, in the first usually occurring within forty-eight hours after the operation, and in the second, between the fourth and fourteenth days. If, now, the high temperature and pulse could be effectually controlled before the character of the blood became depreciated, one great danger would be taken away from them. This fact had long been recognized, and in order to accomplish the result desired quinine, salicylic acid, the application of ice-bags to the head, and other means had been resorted to, but they had all proved inefficient. He had long been looking for some convenient method of applying cold affusion, and had almost given up the matter in despair, when his attention was called to the fever-cot devised by Dr. G. W. Kibbé, which answers the purpose for which it is intended in the most admirable manner.

This resembles an ordinary cot in general appearance, and it is provided with a movable head and foot piece, but instead of the usual canvas there is a net-work of strong cord. Underneath this there is an apron which forms a trough for carrying off the water, one end of it being lower than the other. Upon the net-work are placed two folded blankets, and over these a folded sheet. When the patient is slipped from her bed to the cot whatever clothing she has on is tucked up under the axillæ, and then she is laid within the folds of the sheet and covered with two blankets, while her lower extremities are placed in flannel drawers or else protected by an extra blanket. Finally, bottles containing hot water are left in contact with the palms of the hands and the soles of the feet, and then the affusion is commenced, a pitcher being employed for the purpose, and care being taken not to pour any water above the level of the lower border of the axillæ or below that of the trochanters. When the affusion has been made the patient is not to be put back to bed, but is to be allowed to remain upon the cot as long as it is necessary to keep up this mode of treatment. In one case under Dr. Thomas's care the patient remained on the fever-cot for three weeks. Ordinarily the affusions are to be made about every hour at first, or as often as the thermometer (in the mouth) shows that the temperature has risen above 100° F. While undergoing this

treatment the patient is not to be allowed to move, the bed-pan and catheter being resorted to in order to render it unnecessary for her to get up. Patients usually find the cot very comfortable, and are thus saved all fatigue. Should they complain of feeling chilly at any time, warm water is to be substituted for the cold in the affusions.

It is not claimed that either peritonitis or septicæmia is cut short by this method, but Dr. Thomas is fully convinced that one of the greatest dangers arising from these affections is thus effectually done away with. In the first case he reported symptoms of acute peritonitis occurring within twenty-four hours after the operation of ovariotomy. At eight A. M. the temperature was 102° and the pulse 120, and at three P. M. the temperature was 103° and the pulse 120. Between three and four o'clock the patient was transferred to the Kibbé fever-cot, and affusions of water at a temperature of 50° F. commenced. This, Dr. Thomas now thinks, was entirely too low, but at all events it had the result of bringing the body heat down to 101⅖° within forty minutes. At the end of an hour the temperature was 99⅔°, and the pulse 112. For twelve days continuously the temperature was kept at or below 100°, the temperature of the water employed in the affusions varying from 58° to 84°. During this time pain was controlled by morphia, and on account of vomiting rectal alimentation was maintained. That acute peritonitis was all the while steadily progressing was shown by the fact that on the fourteenth day more than a pint of pus escaped from the abdominal wound. On the twenty-sixth day the patient died, the fatal result being due to localized gangrene.

In the second case the temperature began to rise twelve hours after the operation, and soon reached 104°. Affusions of water at a temperature of 68° to 75° were employed, and in twenty-four hours from the operation the temperature had fallen to 101°. It was kept at 100° to 100½° for five days, when acute pleuritis set in, and it went up to 102⅖°. In twelve days the patient died, and the autopsy revealed pleurisy, pneumothorax, and peritonitis. It was certainly an open question whether the chest trouble had not been occasioned by the cold affusions, but Dr. Thomas was of the opinion that it was not. In two other cases there were also fatal results, which shows that the disease marches on notwithstanding the fact that the temperature is kept at the normal standard.

Dr. Thomas then related a number of successful cases, in one of which an ovarian cyst had ruptured into the peritoneal cavity, and the temperature went up as high as 105⅘°. In another case of peritonitis, not due to ovariotomy, the patient also recovered, and here it was very noticeable that opium produced a much better effect when the temperature of the patient was about natural than when it was abnormally high.

Finally, Dr. Thomas had employed this method of cold affusions in four cases of ovariotomy simply as a preventive measure. As soon as the operation was completed the patients were placed on the Kibbé fever-cot, and whenever the temperature rose to 101° the cold affusions were commenced. All four recovered.

At the conclusion of Dr. Thomas's paper a very fine portrait in oil of the late Prof. Edmund R. Peaslee was presented to the academy, and it seemed

especially appropriate that this should take place on an occasion when the session was devoted to ovariotomy, a subject with which his name is so inseparably associated. It was a further happy coincidence that Dr. Peaslee's son was admitted to the fellowship of the academy the same evening.

GARLAND'S PNEUMONO-DYNAMICS.[1]

THE work of Dr. Garland upon pneumono-dynamics will well repay careful reading. It is devoted to an exposition of the author's views upon the physical conditions which obtain with fluid effusions in the pleural cavity. He states the purport in the following words: "The object of this essay is to give a description of the true curve of flatness, to teach the proper way to search for it, to contribute certain experiments which seem to throw some light upon the origin of the curve, and finally to discuss the diagnostic value of this much-disputed symptom." This curved line of flatness with pleural effusions was first described by Damoiseau, of Paris, and later redescribed and elaborated by Professor Ellis, of Boston. As taught by the latter, it begins at the vertebral column, advances thence in a letter S curve to the axillary region, its highest point, and thence descends in a straight line to the sternum." In the earlier pages of the work extensive pleural adhesions and an excessive amount of effusion in the pleura are alone admitted to be capable of abolishing this curve. In a chapter devoted to the consideration of the circumstances modifying the curve, those conditions which diminish or neutralize the natural elasticity of the pulmonary tissue are described as having a greater or a lesser influence in this direction. The author very properly insists upon a certain manner of percussion as essential to the correct development of the curve. This consists in light percussion made in parallel perpendicular lines, from above downwards, for the establishment of the portion anterior to the dull triangle, a region situated between the angles of the ribs and the vertebral column. In this latter position he advises light percussion in horizontal lines from the vertebra outwards, in addition. The advice to leave the well side alone when endeavoring to distinguish between dullness and flatness is important. Ferber, having criticised certain previous experiments which Dr. Garland had performed by injecting plaster of Paris and glue into the pleural cavities of dogs, the author in this work gives the result of the use of melted butter of cocoa instead. This material was thrown into the pleural cavities of dogs placed in horizontal, perpendicular, and inclined positions, and in each he found his specimens to indicate hydrostatic inequilibrium, care being taken to allow a sufficient time to elapse to permit the injected material to stiffen. In a note in the latter part of the book he gives the result of an experiment upon a living dog, in which he allowed the fluid to be drawn into the chest by the elastic retractility of the lung. (The critic must confess that he regrets that the element of aspiration with inspiratory efforts is not mentioned.) The dog in this case lay on his right side, and the fluid introduced in the left axillary line was afterwards found in both pleural cavities, having filtered through

[1] *Pneumono-Dynamics.* By G. M. GARLAND, M. D. New York: Hurd and Houghton; Boston: H. O. Houghton & Co.; Cambridge: The Riverside Press. 1878.

the mediastinum, and accumulated for the most part like a saddle over the heart; some was, however, found between the diaphragm and lung, and in the vertebral groove, but scarcely any in the lateral region on the right, none on the left side. He states of this experiment that each lung had, irrespective of its position, appropriated an equal amount of fluid, and that both had distributed the same alike. One other experiment was performed with a dog perpendicular upon his head, the fluid being injected in the ninth intercostal space of the right side. The injected material was found covering the apex of the lung like a hood. This experiment was similar to one performed by Ferber, and gave like results. Dr. Garland claims that by inverting the animal he had caused the heavy weights of the liver and stomach (?) to bear directly upon the diaphragm, and that this had become abnormally convex toward the chest in consequence, and had thus exhausted enough of the retractility of the lower portion of the lung to allow the fluid to gravitate to the upper portion.

The author has also called in to his aid the toy balloon, inflating it in an ovoid glass flask with opposite openings; through one a glass tube ran to the balloon, and the other was placed by means of a neck in contact with water These experiments were varied by employing a bottle with the bottom replaced by a rubber diaphragm, partially filled with water, and then noticing the effect produced upon the diaphragm and the water level by allowing the air to escape from a balloon, which had been inflated sufficiently to drive all air out of the bottle. The experiment was also varied by injecting the water into the flask.

The conclusions drawn from these experiments are that no fluid can compress a fleeing retractile body until the elasticity of the latter is exhausted, provided that, if injection is used, the velocity of the fluid injected does not exceed the retreat of the retractile body.

Dr. Garland devotes a chapter to the proof of the analogy of dogs' lungs in the chest to elastic bodies in closed vessels; and later considers the analogy between human lung and dog's lung, and hence claims that the conclusions derived from a study of elastic bodies in closed spaces, and from experiments performed by introducing fluids into the pleural cavities of dogs, can be applied to fluid accumulations in the pleural cavity of men possessed of normal lungs. The result is that he denies that the lung can be compressed until its elasticity is exhausted, stating that the Ellis curved line of dullness corresponds to the lower border of the lung in shape, and in position to the line of demarkation between lung and effusion; that the effusion must be considerable in order to efface it, as he has traced it as high as the third rib in the axillary line; and that as absorption takes place where this line has disappeared it will return.

Dr. Garland says that the letter S curve depends upon the following causes: (1) presence of fluid in the pleural cavity; (2) position of the patient; (3) elasticity of the lung; (4) shape of the lung; (5) negative pressure of the fluid; (6) shape of the chest; (7) absence of adhesions, complications, etc. The curve appears in its purity only in the vertical position of the body. He also states that it is modified by adhesions, change of posture to a certain extent, and diminished contractility of lung, and under the latter condition it may be difficult to trace. It is also rendered difficult to distinguish by in-

creased condensation of lung as it retreats before the fluid, and by all those changes of the lung parenchyma which diminish pulmonary resonance, especially by œdema. He believes that the curve can be traced in hydrothorax as well as in pleurisy, and thinks that the amount of fluid is generally rated too high.

In interpreting the various physical phenomena of pleurisy he arrives at the following conclusions: that dullness over lung above fluid is due to diminished air in the lung, not to fluid between the lung and the chest wall; that the first appearance of dullness is posterior in the costo-diaphragmatic groove, where, owing to the small effusion and the thick back muscles, flatness is not discernible; that in the axillary region the chest walls are thin, and in consequence flatness is readily perceptible early. He believes that small effusions may be so held up that there shall be no change of the position of flatness, but that with larger quantities of fluid there may be a change; that respiration may effect slight changes in the line of dullness, owing to the action of the diaphragm, and that if bagged down its contraction will produce an expiration; that the cessation of friction sound is due to cessation of movement on the affected side, first from pain and then from impairment of muscular action; that bronchial breathing and bronchophony, when occurring, are to be explained by the lung assuming a state of contraction favorable to the conduction of sound, and that this is due to the vibration of the whole chest wall, and not a small section of it. The failure of puncture in certain cases to remove the whole effusion he explains as being due to the lifting force of the lung, and relies on the clinical experience of Dr. Bowditch with reference to the rise of the diaphragm, which the latter has found the source of much annoyance, preventing the fluid from flowing off.

He believes that displacements of the heart and mediastinum are due to the elastic retractility of the sound lung, aided later by the effusion; that the spleen, liver, and stomach become displaced by the diaphragm bagging down behind them, pushing them downwards and forwards; that the lung cannot be compressed until the retractility of the organ is exhausted, either by disease or by contraction, and until the effusion has a fixed point of support below from which to operate. Hence compression of the lung is impossible so long as the diaphragm is elevated into the thorax, unless it be held up by adhesions or by intra-abdominal pressure from tumors, gas, etc.; and so long as a well-marked letter S curve can be traced the lung is not compressed.

Dr. Garland thinks that the right diaphragm bags sooner than the left, because this action is aided by the negative pressure of the liver beneath, and that a very powerful lung associated with large effusion may cause but little displacement, while slighter effusions with weak lungs may cause relatively great displacement.

In the chapter on pneumothorax he applies similar reasoning to the displacements occurring from this cause, and then quotes Skoda and Powell, of England, who gave similar explanations; these, he states, he had not read until he had arrived at similar conclusions as the result of his own experiments.

He also adds that negative pressure of the lung favors absorption into the pleural cavity, and that, following the experiments and reasoning of Dybkow-

sky, whom he quotes, the action of the intercostal muscles favors absorption out of the pleural cavity during inspiration.

The critic has thus given a rapid survey of the words and some of the reasoning of the author. He confesses that he has read the book with a great deal of pleasure, and believes that in many points it contains a correct explanation of the facts which occur. But there are certain things which will need renewed investigation, and a careful comparison with the results of post-mortem examination. There is one other circumstance which must modify the result with effusions of some size, and that is that the lung is not like a single balloon in a glass flask, but would be more like two or three, according as we consider the right or left side. Now, it seems to the critic that even if we admit that the elastic retractility of the lung holds up the fluid, as the fluid increases the lower lobe will, as it retreats, exhaust a good deal of its elasticity in one portion more than in another. He cannot understand why the elastic retractility of the upper lobe should not, as that of the lower lobe is becoming exhausted, draw fluid between the lower lobe and the chest wall. If we take the elastic retractility of the lungs as our guide, and as we see it post mortem, we shall find that the upper and middle lobes have the power of contraction as well as the lower. Now the question is, What do post-mortem examinations of persons dead with pleural effusion show but that the lower lobe is immersed in the fluid and carnified to a certain extent when the upper lobe is not affected, or that a part of the lower lobe is so when the upper portion is much less in this condition? More than this, post-mortem examinations demonstrate that the lungs have a very variable power of retractility, and that in some cases very slight accumulations of mucus in the tubes, or a moderate œdema, will to a great degree prevent this retraction. Since reading the work the critic has been struck by the failure of the lungs in several cases to retract to any considerable extent, and this in persons not dying of pulmonary disease, and with only little or no mucus in the tubes. Where people in previously good health die rather suddenly, then, as in the collapse stage of cholera, the retraction may be marked. In that case this is owing in part to the extreme anæmia of these organs. Now the point at which we wish to arrive is this, that the lungs are possessed of a varying degree of retractility, and that the strong probability is that sickness modifies this condition as it does the activity of other parts. If this be true, — and the writer entertains no doubt of it, — it would certainly be anticipated that in pleurisy some influence in this direction would be manifest, and that in consequence the conditions are not exactly analogous when water or cocoa butter is injected into the pleural cavity of a healthy animal. The critic has found that the letter S curve is liable to variations, the subject being carefully examined since the reading of the book. It has been as high in front as in the axillary line, and the highest point has been at the angle of the ribs. That the line of flatness in pleurisy is not absolutely horizontal seems positive; that the curved line assumes the typical letter S shape is certain for some cases, but not for all, independent of adhesions, etc. Not only do post-mortem examinations show the lower lobe partly sunken in the fluid and carnified, but we feel confident that the use of an exploratory instrument would discover the existence of fluid at a higher level than the author of the book imagines. The use of a hypodermic syringe for explora-

tion will settle this question. The critic has not had time to perform an experiment which he feels would do much towards settling this dispute. He mentions it here that some one with more leisure than he at present has may undertake it. It consists in having a glass model of the chest made from a plaster cast. This shall have an opening in the median line, through which the trachea may pass; the bottom shall be open, to allow of the introduction of the lungs, and afterwards shall be closed by a rubber diaphragm. It shall have in addition a small opening on the side to give exit to air, or to allow of the entrance of water. The lungs being inflated in such an apparatus the question of their action on the introduction of fluid would be readily manifest. The lungs, pleura, and heart of an animal newly killed, or of a recently deceased individual, could be used for this purpose. It seems wiser to employ the viscera in as fresh a state as possible, on account of the probable loss of a certain amount of elasticity after death.

The position of the heart in the thorax is that assumed as the result of embryological development, the body lying on the left side. It is, however, pretty certain that it retains this position in consequence of the mutual antagonism of the two lungs. The critic feels inclined to believe that some pressure effects may manifest themselves before the diaphragm becomes thoroughly bagged down. It seems probable that a certain amount of opposition, force, or resistance would be exerted on the part of the abdominal contents and of the abdominal wall so frequently as to prevent this being the exception. That the heart is displaced in pneumothorax in consequence of the retractile force of the sound lung we consider to be a sound proposition; that fluid has as little effect in producing the change in cases of effusion, as the author claims, we do not feel to be proven, though prepared to admit some influence from the same cause as that which operates in pneumothorax.

The amount of fluid in the pleural cavity as estimated clinically compared with the quantity actually present is, we think, as a pretty general rule, understated, rather than, as the author thinks, overestimated. This, at least, has been the result of our experience.

There are a number of other points in the work upon the discussion of which we should be glad to enter, but we feel that we have given such an outline, and made such a statement, as shall enable the reader to judge for himself. This we should advise after a perusal of the book, not of the criticism simply. New books are no rarities; books with new ideas upon medical subjects are sufficiently rare to make us give each one a hearty welcome, and a place in our libraries.

PREVENTION OF DISEASE, INSANITY, CRIME, AND PAUPERISM.[1]

In dealing with the subjects of his paper Dr. Allen confines himself to their possible prevention. Recognizing at the outset the lack of success in agencies

[1] *Prevention of Disease, Insanity, Crime, and Pauperism.* A paper read by Dr. Nathan Allen at the Conference of Charities connected with the late meeting of the American Social Science Association at Cincinnati.

heretofore employed to check them, he presents, in a forcible manner, the better suggestions which from time to time have been made by the more thoughtful of those who have studied disease, crime, insanity, and pauperism under their social aspects.

The progress in this and other countries of systematic attempts to prevent the rise and spread of diseases is briefly reviewed, and the many encouraging results are noted. Dr. Allen lays great stress upon the effects of heredity, and takes the sensible view that the transmission of disease should be prevented by care in forming matrimonial alliances. He finally quotes the words of Dr. Bowditch, namely, "Our art of the present day looks . . . . to the *prevention* as well as the *cure* of disease. And this is to be done by sanitary organizations throughout each State, the nation, laity, and the profession heartily joining hands in this most noble cause."

In regard to *insanity* Dr. Allen urges that no organized endeavors to secure its general prevention have ever been put forth. Statistics show that ninety per cent. of inmates of insane asylums are incurable. This is the strongest argument in favor of some attempt at prevention. The expense of sustaining the insane is augmented yearly by the increase of insanity. What can be done by way of prevention? Diffuse information on the subject among the general public; impress upon the people that intemperance, hereditary influence, ill health, fast living, high pressure in educational systems, are common causes of insanity, and set in motion means by which these causes, with the help of the public, may be modified if not overcome. In this work state legislatures should earnestly join. Such are some of Dr. Allen's views upon this matter.

Practical steps in the prevention of *crime* were first taken one hundred years ago, after the publication of John Howard's work on The Prisons of England and Wales. The greatest changes in behalf of prisoners have been made within the past twenty-five years. But however favorable their effect, crime in this country is steadily increasing, and prisons everywhere are not only crowded, but one fourth of their inmates are recommittals. The need is discussed by Dr. Allen from one point of view, namely, prevention. "We may check crime in criminals, we may keep persons from becoming criminals." Wherever the proper means have been used the character of prisoners has been improved and the number of criminals reduced. The moral nature of prisoners should receive more attention.

In Ireland greater reform than elsewhere has been made in prison discipline. This has been based upon a system of rewards and promotions, as well as encouragement and assistance to prisoners after their release. Similar improvements, with similar results, have been introduced into England. In this country such favorable improvement and decrease of crime cannot be reported. By way of prevention Dr. Allen recommends compulsory education, especially in low communities where children abound. Intemperance is the cause of three fourths of all crime committed. Means should be taken to prevent intemperance. Heredity being the primal cause of crime, the higher and better nature of the criminally inclined should be developed. Crime might be avoided if certain classes of vicious persons could be prevented from propagating.

In reference to *pauperism* Dr. Allen states that in New York 62.50 per

cent., and in Massachusetts 67 per cent., is due to intemperance. The means of prevention here suggest themselves. In order to effect a decrease of pauperism education should be enforced, communities of the vicious and idle should be broken up, surroundings should be bettered, children of paupers should be apprenticed, and pauper families separated and scattered. But little can be done to make a person once a pauper self-supporting. Preventive means must therefore be directed to the young who are exposed to the influences of idleness, poverty, dissipation, and filth. In this way prevention will become more helpful than any attempt at cure. Prevention, too, may be made active by directing attention especially to improvement in hereditary agencies and to the crushing out of disease.

This superficial sketch gives only a hint at much more that is interesting in Dr. Allen's paper.

LECTURES ON CLINICAL MEDICINE.[1]

THIS recent publication of Dr. McCall Anderson comprises a series of seventeen lectures on clinical medicine, delivered in the Royal and Western infirmaries of Glasgow, and recalls the attractive volume published by the same author some time since on cutaneous diseases. In the introductory chapter of the present volume Dr. Anderson dwells at some length on the little attention that has hitherto been given to clinical instruction, and upon the best modes of imparting it. He well remarks that, without intending in any way to undervalue the importance of systematic lectures and of reading, it must be admitted that these are sorry substitutes for bedside study. He recommends small classes and competent instructors, that the patients may not be disturbed by the din and confusion of a boisterous crowd, and that the students may reap the largest benefit from the exposition of the cases.

The first lecture of the series is full of practical wisdom, and is written with all the clearness and point which characterize the writer. The author alludes to the more recent discoveries and progress in the field of practical medicine, and calls attention to the great advance in the methods of diagnosis and the modes of treatment of disease as illustrated by the thermometer, laryngoscope, ophthalmoscope, sphygmograph, the application of electricity, subcutaneous injection, not omitting the important results following the external application of cold in the form of the cold bath in cases of fever, and of iced cloths in internal inflammations or congestions.

The remaining lectures contain a series of cases intended to illustrate the value of remedial measures properly applied. The cases are well selected and stated with great accuracy, and show what grave difficulties may sometimes be overcome by empirical treatment where a more strictly scientific method is at fault.

The book is well illustrated, is in every way most attractive, and is a positive addition to the literature of clinical medicine.

[1] *Lectures on Clinical Medicine.* Delivered in the Royal and Western Infirmaries of Glasgow. By DR. MCCALL ANDERSON, Professor of Clinical Medicine in the University of Glasgow. London: Macmillan & Co. 1877. Pp. 208.

THE SUMMER SOLSTICE.

A MAXIMUM temperature of 98° on the 3d of July, a degree of heat not exceeded on the records of the Signal Service Bureau since July, 1872, when the thermometer once touched 98.5°, and a very high mean temperature for the first half of the month of July tell the tale, we hope, of the worst part of "this summer of our discontent." Last summer a very temperate season permitted us to regard diarrhœal diseases and sunstroke with tolerable complacency, and enabled us to forget the sufferings of 1876; but a registration of fourteen deaths from sunstroke for the week ending July 6th, and a very large number of admissions to the hospitals on account of heat prostration, make the tendencies of the season as affecting those exposed to them and the avoidance of their worst effects a matter of prime interest to all.

As was very justly remarked in the Fifth Annual Report of the Board of Health of the City of Boston, "any influence which the weather may exert on the public health does not impress itself so immediately on the death-rate as on the sickness-rate. If we had a sickness registration we could undoubtedly define a direct coincidence between unusual meteorological conditions and unusual sickness. But the fatal termination of illness is frequently postponed till long after the origin of the disease, so that we must judge with caution concerning the relation of extreme weather to death-rate undulations." To this remark, however, the death-rate undulation of sunstroke would be an exception, and it requires neither a prophet nor the son of one to foretell the increased death-rate which we may expect among the infirm and the very young, and that before the close of the present month, after even one week with an almost daily maximum among the nineties and a very high mortality from sunstroke. Now is the moment for the best work of seashore homes, country weeks, harbor excursions, and all other means for giving fresh and pure air to those who get too little of it. The interval between the maximum of heat, which is generally reached before the latter quarter of July, and the maximum of heat diseases, which we may expect before the latter third of August, is a precious moment for preventive medicine. Now, perhaps, is not the moment to urge the appropriation of one of the islands in the harbor as a city park, but such a project we hope may be realized at an early day. The summer of 1876 infused its own ardor into the discussions of the park question and the sewerage question, and it is with plea-ure, in spite of the inconveniences, that we see in our streets evidences of the approaching fruition of a park and decent sewers. With pleasure we lately learned that the city government had finally made an appropriation for the abatement of the Roxbury Canal nuisance, and we would willingly offer ourselves as victims to another week among the nineties if, in addition to protection already secured against the return of the product of our sewers upon our streets, we could thereby procure the watering of the same with clean water at the expense of the city, whose money could not be put where it would do the tax-payers more good.

With the completion of these reforms, and with the continued zealous and intelligent efforts of our city Board of Health, who, by the prompt removal of offenses, are doing much to further delay and curtail the crest of the death-

rate undulation, Boston may again become what it used to be, and what we were compelled last year to say it had ceased to be, one of the most delightful summer resorts of New England.

At least we may be spared the sad spectacle of rows of long streets lined with what impress one more as gigantic tombs of the dead than as houses of the living.

MEDICAL NOTES.

— It gives us pleasure to record that Dr. Harrison Allen, of Philadelphia, has been elected to the chair of physiology in the University of Pennsylvania, recently made vacant by the decease of Francis G. Smith. Dr. Allen for several years has been professor of comparative anatomy and zoölogy in the same institution.

— Our readers have undoubtedly observed the frequency of malpractice suits in the State of Maine, and will therefore read with interest the statistics given by Dr. Sanger at the recent meeting of the Maine Medical Association.

"There are about six hundred regular physicians in the State. I have received reports from one hundred and fourteen of them, and in these reports have collected seventy cases of malpractice suits, fifty-five threats, and fifty-eight who have never been sued or threatened. Many, from modesty and disinclination to advertise their contributions to the patients and attorneys, who follow us as the shark does the emigrant ship, have failed to report. The youthful and unthrifty of our profession are exempt from these rapacious attacks, and yet I have reports of more than one hundred and twenty-five cases of such suits and threats within the remembrance of the present generation. Excluding those who will not report, and those who would naturally be exempt from such assaults, we may safely say that hardly a surgeon of experience and property in active practice escapes the annoyance and expense of these vexatious attacks. Of the seventy who were sued for damages of from $1000 to $25,000 six paid from one $100 to $350 rather than stand trial, and nine were cast in damages for malpractice of from $103 to $2000. The nine plaintiffs who compounded were not worth anything. Eight of the nine who got damages were not worth a dime, and all but six of those who failed to sustain their suits were worthless. Out of seventy prosecutions only seven were able to pay taxable costs, and very many of them were drunken and shiftless persons. One in eight got a verdict for damages. The nine who settled got $1980, but as one had six trials, and two others one each, and as none of the plaintiffs were able to pay the costs of a suit, it is probable that lawyers and witnesses absorbed the entire amount. The total paid on the verdicts for damages was about $6500, and as many of the suits were long and expensive, it is probable that more than one half of the sum was devoted to expenses, leaving about $3000 to be distributed. How much the lawyers realized, and how much the patients, does not appear, but a very small amount went to fill hungry mouths."

— In regard to the medical and surgical statistics of our civil war Virchow says: They were the result of "the critical, truly scientific spirit, the common

sense, the sound practical intelligence, which in America gradually permeated all circles of army administration, and with the wonderful assistance of an entire people reached the highest degree of humane effort ever yet attained in a great war. . . . . In these publications the extremest accuracy in detail, statistics careful in the minutest particulars, a learned presentation of the subject embracing all sides of medical experience, are here united in the most complete manner possible."

— A gentleman walked quietly up behind a friend and suddenly planted the palms of his hands over the ears of the latter. The sudden condensation of the air ruptured the left tympanum. Professor Chisholm reports the case.

— Dr. Favrier writes to *La France médicale* that in a case of obstinate hiccough which had been incessant for fifty days, and in which he had vainly tried many sedatives, narcotics, and caustics, strong compression of the epigastrium completely arrested the spasms within five minutes. He did not try faradization of the phrenic nerve.

— The *Medical Times and Gazette* (June 1st) tells of a medical school at Kasr-el-Aïn, Egypt, which was founded in 1827 by Mehemet Ali. Since 1856, under French and German specialists, it has restored Egyptian medicine to the rank of a science. The Mahometan prejudice against dissection has been long overcome, and Western pathology having been adopted the school turns out a high class of graduates. Its curriculum extends over five years, the first two being devoted to preliminary education. Attached is a large hospital and a school of midwifery, where young women are instructed in the elements of obstetrics, are taught reading, etc. After three years of study these women are sent into the provinces, where the prejudices of Arabs and Copts forbid male practice of the obstetric art.

— Dr. Ollivier (*Gazette hebdomadaire*, May 17th) reported to the Paris Academy of Medicine a case of gout in which were found in the spinal canal appearances due to infiltration of urates at the external surface of the spinal dura mater. These spinal manifestations have hitherto been suspected rather than described.

— The Berlin Society of Military Hygiene proposes to introduce dogs into the army as auxiliaries of the ambulance corps. By means of the intelligence of these animals it is thought the sick or wounded who fall in secluded places can be much more quickly and certainly found.

— The Pennsylvania State Medical Society, at the recent annual meeting, voted to use the metric system in all communications in which reference to weights and measures is made. The society likewise voted that all members of the society recommend students of medicine to attend only such colleges as rigidly enforce the three years of study; also resolved to appoint "medical examiners," whose duty it shall be to see that students proposing to enter upon the study of medicine have a good English education, and know sufficient Latin and Greek to be able to pursue their studies with advantage. And no member of the society shall receive as a student any person who does not present a certificate from the committee.

— Dr. Danforth, of Chicago, reports that he has found the "ovarian cell" in fluid drawn from a cystic kidney. See JOURNAL, February 7, 1878.

BOSTON CITY HOSPITAL.

A RÉSUMÉ OF THE CASES OF LISTER DRESSING IN DR. CHEEVER'S TERM OF SERVICE.

[REPORTED BY E. O. OTIS, HOUSE SURGEON.]

SEVEN cases of operation and accident have been treated by the Lister method; four have been completely successful, two partially so, and one a non-success.

Compound Fracture of Lower End of Humerus. — The first case was a compound fracture of the lower end of the humerus into the elbow-joint in a boy of about twelve or thirteen years of age, caused by striking on a banister in falling downstairs. When he was brought to the hospital the broken end of the humerus was sticking out through an ugly wound. Ether was given, and an incision made opposite the wound, through which and the original opening the ragged end of the humerus, for one half an inch, was sawed off, and the condyles were dissected out, leaving the articular ends of the radius and ulna. The wounds were plugged with sponges and put up in a Lister dressing, which was applied not with the hope of entirely avoiding suppuration, but of lessening it. The dressing was changed every day for a while, and the wound syringed out with warm carbolic acid and water. Changing the dressing every day was probably too often, for unless there be pain, a rise of temperature, and a discharge sufficient to discolor the outer layer of the dressing, the Lister can be left on indefinitely.

There was a moderate amount of discharge, and after the lapse of about ten days a slight quantity of pus was discovered; this, however, was small in amount and continued to be so. After the first three weeks the Lister was changed only twice or thrice weekly, and in four weeks was removed, the wound being closed, and only a small superficial ulcer remaining. The extremely small amount of discharge in this case seems to be fairly attributable to the use of the Lister.

Sarcoma of the Breast. — The next case was the removal of a sarcomatous tumor of the breast. The whole operation was done under the spray, catgut ligatures were applied, and carbolized silk sutures; a drainage tube was also put in. The primary dressing was removed in about thirty-six hours; no signs of suppuration. Five days after the operation the wound had almost entirely united by first intention. About this time a minute orifice near the upper part of the wound was discovered, from which, on pressure, a dirty, brownish secretion exuded; evidently a part of the wound had become shut off from the drainage tube. After a few days, this opening entirely closed, and had it not been for the Lister it is probable that here would have been the starting-point for more or less extensive suppuration.

Two weeks after the operation the drainage tube was removed, and two days later the Lister discontinued, the wound being closed, and only a small granulating surface remaining; eight days after this the patient was discharged well. The highest point the temperature ever reached was 101.5° F., on the third day, and this on only one occasion. It was also remarkable

how comparatively free from pain the patient was throughout the whole convalescence.

Removal of Enlarged Axillary Glands. — The third case was the removal of a mass of enlarged axillary glands, making a large, ugly wound. While tying the vessels two silk ligatures were put in and cut off short, contrary to Mr. Lister's directions. Also in the course of the operation the steam atomizer gave out, and the wound was for a time exposed to the air; still the Lister was persisted in, and a good result obtained.

Two days after the operation union by first intention seemed to be perfect, and most of the stitches were removed. A few days later the patient began to complain of pain, and the dressing was stained with the discharge. On examination a small opening was discovered in the centre of the wound, from which the discharge came, and which was, no doubt, due to the presence of the two uncarbolized silk ligatures. On this account it was necessary to change the dressings more frequently, so that in all the Lister was renewed six times. This increased discharge continued for some days, probably until the offending ligatures came away; then the wound completely healed, and at the end of twenty days the patient was well of the operation. The highest temperature was 100° F., on the day after the operation. Had it not been for the silk ligatures the wound in all probability would have been healed at the end of a week. It is worthy of note that pain to any degree existed during the time of the increased discharge only.

Removal of Needle from Knee. — The fourth case was the removal of a needle from the knee of a woman. It had gone straight down into the joint. Incidentally it may be of interest to note that this woman came to the hospital saying that while kneeling on the floor washing, some five months previous, she stuck the needle in her knee, and several unsuccessful attempts had been made at the Carney Hospital and elsewhere to remove it. It was learned from the house officer at the Carney Hospital that already three needles and parts of needles had been extracted at different times from the knee, and that in all probability the woman herself inserted the needles in her knee, for some unknown cause.

After the synovitis from which she was suffering on entrance had subsided, a crucial incision was made over the patella, and a slight projecting point being felt at the lower border of the patella another incision was made, and through this an ordinary cambric needle was seized and withdrawn. Carbolized silk sutures were used to approximate the flaps, and the carbolic spray during the latter part of the operation.

The Lister dressings were changed only twice, the first change being four or five days after the operation. There was perfect union by first intention; not a drop of discharge, and no rise of temperature at any time.

Eight days after the operation she was discharged well. On one occasion only did she complain of any pain.

Fatty Tumor of Back. — In the fifth case a fatty tumor was excised from a man's back. An incision six or seven inches long was made, through which the tumor was excised. The bleeding vessels were stopped as usual by catgut ligatures, and a drainage tube introduced. The neglect of one important

point caused much after-trouble and more frequent changing of the dressings, namely the complete stoppage of the hæmorrhage before applying the dressing.

Four days after the operation there was union by first intention, and the sutures were taken out. On account of the after-hæmorrhage causing quite abundant discharge the drainage tube was not removed until the eleventh day. Five dressings were used in all. It was hardly necessary to apply the last one, but to be absolutely safe it was put on. There was no rise of temperature, and no pain. Twelve days after the operation he was well.

Amputation of Thigh. — In the next case, which was not successful, a thigh was amputated high up for diseased bone. The stump was in a diseased condition, and it was hardly expected that the Lister would succeed. Also in the course of the operation the spray gave out, and a few hours after the dressing had been applied it came off, and was reapplied without spray. Six days later the flaps had united for the most part, but the discharge becoming purulent and offensive the Lister was discarded, and the soda and opium wash was thought to be more suitable for this condition.

Lacerated Wound of Leg. — The last case was a lacerated wound of the leg, the skin being torn up and bruised for quite a distance. A Lister dressing was applied, not with the expectation of avoiding suppuration and sloughing, but with the hope that the amount of suppuration would be lessened and the healing process more quickly begun. In five days the sloughs had entirely separated, and a healthy ulcer remained. The Lister was then discontinued.

[*Remarks.* These cases, though so limited in number, have taught us many practical points as to the application of the Lister dressing and the conditions of its success: —

(1.) The changing of the Lister dressing is regulated by these three conditions, temperature, pain, and discharge, any one of which existing calls for a change.

(2.) The Lister is serviceable, and well repays its use, in cases which from their very nature must suppurate, for the amount of suppuration seems to be reduced to a minimum.

(3.) Great care must be taken to stop all hæmorrhage before closing the wound, and in every wound of any magnitude one or more drainage tubes should be inserted, not covered by the oil-silk protective, but by the last gauze and the Mackintosh gauze.

(4.) Only catgut ligatures are to be used in the ligation of vessels which are cut short off. The neglect of this rule was illustrated in the third case.

(5.) Whatever atomizer is used in an operation of any length, it is well to have a number of towels wrung out in a solution of carbolic acid, ready in case the atomizer should fail. If the spray does stop, and the wound is left open to the air, it does not follow that the case is hopelessly lost as a Lister one, for the wound can be washed with the carbolic acid solution, and the spray again turned upon it with good hope of success.

(6.) It is well to have an abundance of salicylic cotton on hand, to fill up crevices and interstices where the gauze cannot be made to fit closely.

(7.) The carbolized sutures can be left longer than common ones, for they seem to cause less irritation.

With regard to the machinery and time used in the Lister dressings, to be sure there are more things required; still, when once obtained, they are very easily used, and the longer time spent in applying a single Lister dressing in comparison with an ordinary one is more than compensated for by the smaller number of times the dressings have to be applied. — E. O. O.]

(*Note by Dr. Cheever.*) The Lister dressing is especially adapted to hospital use. It is a cleanly and pleasant dressing, destructive to pus cells, and hence sanitary in hospital wards. That it is not indispensable to prevent suppuration in favorable cases in private practice is proved by the healing of large wounds by first intention, which has occurred in all times in country localities and in healthy persons. Recently the writer removed a breast from a vigorous woman in the Highland district by the old method of non-carbolized silk ligatures and sutures. The only innovation was the use of a rubber drainage tube, which conducted away the sero-sanguineous exudation of the first twelve hours more perfectly than the dependent coil of ligatures alone. This wound healed, literally, without pus. The patient was out of bed in one week, and attendance ceased in two weeks. The wound closed perfectly. Cold water was the only dressing used, and no antiseptic precautions were taken either during the operation or subsequently.

SHORT COMMUNICATIONS.

THE MASSACHUSETTS MEDICAL SOCIETY AND THE 'PATHIES.

Mr. Editor, — The editorial in relation to the Massachusetts Medical Society and the 'pathies, which you published in the Journal for June 27th, it seems to me does not bear strongly enough upon the real reasons for the non-admission of exclusives to our state society. The obstacles between us and them are briefly these: (1.) Their lack of sincerity. (2.) The impossibility of assimilation. (3.) Because we are so broad in our principles that we cannot admit a man who believes in a 'pathy, an 'ism, or a special theory.

First reminding you that the 'pathy which is the "vexed Bermoothes" of this discussion is homœopathy, may I be allowed to elaborate these three statements: —

(1.) Lack of sincerity. It is possible to imagine a very small (I should not dare say how small) percentage of homœopaths who sincerely believe in unadulterated Hahnemannism. They belong under the second category, and require no further mention under the first. There remains the large percentage who fly two sets of colors. They call themselves homœopaths, — they use our medicines in our doses, and consequently when the patient's condition demands an actual remedy they do not trust to homœopathy. "But," say the homœopaths and their misguided friends, "are you so bigoted that you will not allow a physician to use whatever form of treatment he may elect?" Our answer is: "Then pull down your Hahnemann colors; you cannot fight under opposing flags in the same battle. When need is, you know there is no help in homœopathy. Why, then, use it as a net for catching the simple? Hahnemannism has been proved to be a nonentity." For proof we refer to the late action of the New York society of homœopaths, which publicly disavowed its belief in this 'ism; to the recent letter of the vice-president of the Homœopathical Society of London; and to the general acknowledgment of homœopaths that there is now but little difference between their practice and ours. Our argument is that it is just as impossible for a candid and sincere man to follow these two forms of practice — ours and Hahnemannism — as it is for a man to be a Roman Catholic and a Protestant on the same day, or at the same moment of time to be in darkness and light. "No man can serve two masters, for either

he will hate the one and love the other, or else he will hold to the one and despise the other." Every fair-minded individual admits the truth of this strong statement. Moreover, to profess homœopathy and follow the practice of our school is *illegal*. Judge Davis, of the Supreme Court of the United States, confirms high legal authority by the following opinion: "When a physician undertakes to treat according to the principles and practice of any particular system he must conform to that system in his treatment, and a failure to do so would be a violation of his contract, so implied by law, and he would be held liable for such violation." For this reason the New York Homœopathic Society has proposed so to alter its constitution as to *make it legal for its members to practice on any system*. We could hardly ask for a more suggestive support of the position we occupy. In their true acceptance, the two schools of practice are simply diametrically opposed to each other. Their conflicting attitude is not man's work. It is a result of the natural gravitation of ideas. Since, then, homœopaths attempt to wear two garments at one and the same time, for courtesy's sake we call them *insincere*.

This brings us to the second reason mentioned, namely (2), the impossibility of assimilation. Men who are insincere, — the larger proportion of homœopaths, who "claim the right to use any medicine in any dose they choose" (see protest of Massachusetts Homœopathical Society), — and the fewer men who sincerely believe in Hahnemannism, can have no part or lot with us. Why? Because it is simply *impossible* for us to assimilate with them. We are too unlike. Principles, and not men, create the gulf between us. This position is strictly logical. If, then, there be two classes of men with whom we can assimilate by no possible arrangement save their conversion, the candid of either side will naturally say, Then the only rational plan is for each body to go its own way.

(3.) We are too broad in our principles to admit an 'ism or a 'pathy. Every medical school but ours has a dogma. We have none. We are called "allopathists." When applied to us the very meaning of this term convicts it of untruth. It would confine us to a strait and narrow way. But our field is like the ocean. It is trackless. We use every favoring wind of heaven. The homœopathists and all other 'pathists — if *honest* — must sail a given course. We follow that in which we find relief for our patient, no matter where it leads us. Why not, then, take the course of Hahnemannism? Because it leads nowhere, but leaves us rotting at the wharves. But if we refuse to admit the 'pathists we are not broad, but "bigoted," "narrow," "illiberal." In reply to this charge we have already shown that our principles are so broad, so liberal, so generous, so eclectic, that we cannot be at ease with men who are tied hand and foot by a dogma like "*similia similibus curantur*," and which has been proved to be pure emptiness; nor can we fraternize with men whose shields bear this dogma, but who fight with our swords.

There is a class of practitioners which calls itself "eclectic." What is its eclecticism? A refusal to use any remedy unless it be botanical. A curious eclecticism! What means the word? It is selection, choice, and combination without unity or system. Who are the true eclectics? The representatives of our school. For there is no earthly thing, manner, or method which can relieve suffering that we do not hail as a friend and helper. This is the noble, manly, unegotistic, irreproachable platform which we occupy. We heartily welcome to it all and any who are properly prepared. But if any candidate have a pet theory, 'ism, or 'pathy we cannot give him sincere greeting, for he is not true blue; he does not possess that purity of professional life which is a requisite of all true discipleship. He is an egotist, a creedist, a worshiper of idols, who thinks, or professes to thinks, his way better than ours. He must gravitate to his own place. He cannot be one of us. From the very nature of our unlikeness it is as *impossible* as that oil should mix with water. To call the oil a "bigot" would hardly help the matter. This is enough and more than enough. Our reasons for not admitting homœopaths to our society ought to satisfy the most carping critic, and I have tried to give them.

Let me add that, by many, the real spirit of the remark made by Dr. Bowditch at the recent meeting of the councilors of our society, namely, "We ought never to have expelled the homœopaths," will perhaps be misconstrued. The context, "This was not done by German societies, and homœopathy in that country is dead," in the fullest sense explains the meaning of Dr. Bowditch, namely, that human nature is so constituted that the more a foolish theory is opposed the greater will be its growth. H. O.

OLD-STYLE VERSUS NEW-STYLE PRACTICE.

BY E. P. HURD, M. D., NEWBURYPORT, MASS.

WHEN I commenced the practice of medicine the traditional saddle-bags had not quite gone out of fashion, and the physician was expected to carry about on his person the principal resources of the materia medica. Then, as even now in very many country places, the physician was his own apothecary. Having his drugs about him in their crude shape he could not be very nice about the mode of their administration. Children remembered and shunned him from instinctive dread at the remembrance of his nauseous doses. His "C. cum J." and "pil. rufii" made the strawberry jam of the good dame's pantry long obnoxious to her children in accordance with the law of association of ideas.

Now things are fast changing for the better, at least in regions that are not outside the pale of modern civilization. No more nasty castor-oil, but delicate emulsions sweetened and flavored with peach blossom and vanilla, which our patrons' children take to with avidity; the oil of the cod in honeyed potion, emulsified and digested, and fit for instantaneous absorption; laxative elixirs that have driven jalap, rhubarb, etc., out of respectable usage. And then think of the parvules, the gelatine-coated pilules, the tiny, tidy capsules, and the fascinating elixirs! And last, but not least, the wonderful variety of malt extracts which our patients declare are so appetizing! To be sure, our apothecaries complain of the hardship of having to buy all these nice things, and exclaim that even the Pharmacopœia is going out of fashion. It may be so, for the pleasant elixirs of the manufacturing chemists are fast superseding the old-time tinctures.

There may be a gain in all this, and there may be an evil, — an evil in so far as we substitute for reliable preparations of known strength those which, while advertised to contain such and such medicaments in such and such proportions, are mere sophistications, the exponents of cupidity, avarice, and dishonesty. I have had personal evidence that some of the elixirs of quinine, caffeine, pepsine, etc., are frauds, and that sugar-coated pills and compressed pills do not always contain all that they are advertised to contain. Granting, however, the reliability of these niceties in pharmaceutics, I think there is unquestionably a gain over the old modes of medication. I believe that it will hold true that a medicine is generally more efficacious that is administered in a pleasant and palatable form. I do not attempt to explain *why;* but I see no reason why remedies which are offensive to the gustatory nerves should not be offensive to the sensory nerves of the whole alimentary canal, and thus antagonize absorption. The membranous apparatus of the veins and absorbents are so far living things that they have their likes and dislikes. Certain it is that I have found in my own person that the bromide of potassium is better tolerated and more efficacious when dissolved in simple elixir or "anise cordial" than when taken in watery solution, and I have patients whose experience is similar. Three cases have just come to my knowledge of persons living in this city who have long been epileptic; these patients were for years treated by a combination of the bromides (two of them by myself) with no satisfactory results. The prescription of the potassium salt in an agreeable combination with cinchona by a Pennsylvania quack has given all three patients an exemption for four months from epileptiform attacks, — *petit mal*, *grand mal*, and everything. I have no interest in recording this fact except that the truth should be told, even if it be against ourselves. In two of the cases my watery solution of the potassium bromide — one-gramme dose — failed to have the slightest effect in arresting the paroxysms; there were constantly diurnal and nocturnal attacks of *petit mal*, with very frequent attacks of *grand mal*. The mixture from Pennsylvania has been thoroughly analyzed by Mr. Carl Castelhau (practical chemist) and by myself, and proved to contain no mineral ingredient but potassium bromide, and that in the proportion of one gramme to the dose; the excipient is compound infusion of cinchona with alcohol. I need not repeat that the effect was immediate, and so far has been permanent. The difference in results cannot be explained by any vague theories about the influence of mind over body, but by the theory — of which we are continually receiving striking confirmations — that medicines which are made palatable are thereby rendered more acceptable to the stomach and more readily gain access, through absorption, to parts physiologically susceptible to their influence. If they offend the sensory nerves of the alimentary canal the probability is that they will prove irritant to the nervous system generally, and be

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speedily expelled through the organs of excretion before they have exercised their special physiological influence.

In dismissing this topic, which might be expanded into a treatise, I would say that it is very important that in the exercise of our functions as family physicians we should be on good terms with the little folks. This requires not only patience with their whims and foibles, but some degree of catering to the gustatory sense of our juvenile patrons. Many a family physician of the regular persuasion has been abandoned for a homœopath because the children would not take the nauseous medicines of the regular. Here the nice "parvules" which contain minute doses in sugary disguise come to our rescue. Here the simple elixirs often serve a good turn; we dilute them with water, add our aconite, veratrum, etc., and children seldom object to them. Calomel, chlorate of potash, ipecac, etc., can be rubbed up with sugar and flavored so as to be quite agreeable to the infantile palate. Astringents, as tannin, catechu, are generally well tolerated in the traditional chalk mixture.

"What a blessing is citrate of magnesia," said a mother to me the other day, "and the milk of magnesia! These preparations are suited to so many complaints of children, and they never refuse to take them."

This is a common but not universal experience. I have on my visiting list little "sons of Belial" that have an inborn antipathy to everything that is called medicine. They are a trial to all kinds of practitioners.

I have endeavored in this article to indicate one of the tendencies of the times, — to eliminate from the materia medica hosts of unpalatable drugs, or find for them an excipient that shall divest them of their unpalatableness. We aim to treat diseases "*tuto, cito, et jucunde*," but we emphasize the *jucunde*.

UNUSUAL ACTION OF MERCURY AND CHLORAL.

Mr. Editor, — Perhaps the peculiar action of two common remedies upon the person of a young married lady, who came here some time since for advice, may not be uninteresting to some of your readers. We often find people who "cannot take quinine or morphine." Occasionally such an idiosyncrasy really does exist, just as it is possible for some people to be essentially poisoned by some common article of food or drink; for instance, the production of urticaria through the use of oatmeal, shell-fish, or sour-krout. I have known honey to produce an intense gastralgia in a lady who was very fond of it. The continued use of buckwheat will often cause a crop of boils in certain persons. Physicians are prone to regard with suspicion the statement of patients (especially ladies) who "cannot take" this or that remedy, — a suspicion which is often too well justified by their experience; but it is simply barbarous when an idiosyncrasy has been well proven to continue the exhibition of obnoxious remedies upon the theory that the imagination is to blame for all these phenomena. An instance came to my knowledge recently of a gentleman upon whom the action of any form of opium is distressing, producing a sense of constriction at the pit of the stomach similar to that caused by placing one pole of a galvanic battery over the stomach and the other on the dorsal vertebræ, and passing a powerful current of electricity through that organ. Having been a witness for a year or two past of the unusual action of mercury in any of its forms, as well as the peculiar action of chloral hydrate upon the person of a lady, I trust that at least a portion of your readers will find it of sufficient interest to repay them for the time spent in perusal. Mrs. A. is a young married lady thirty years of age, with marked nervous temperament. She has never had any illness. Upon returning from Europe a few years ago she visited an infirmary in New York. Being troubled with constipation, the attending physician prescribed a pill containing some form of mercury. A few hours after taking the pill, Mrs. A. was awakened by an itching, burning sensation over the whole body. Upon examination the skin was found to be red and of a burning heat to the touch, resembling very much the skin of a child suffering from scarlatina. The distress from the burning heat and pruritus lasted for twenty-four hours, but finally subsided. The case was treated as one of erysipelas. At the end of about eight or ten days the skin over the whole body began to crack, and desquamation began; large flakes came off, as she describes it, "as large as the palm of the hand." Not a square inch of skin over the whole body failed to peel. Mrs. A. suffered no further inconvenience, except that the new

skin was very tender and sensitive. Two years afterwards, in Detroit, the same thing occurred, and then it was surmised for the first time that mercury occasioned the trouble. Some time later Mrs. A. came under my treatment, and, having occasion to prepare a lotion for her containing hydr. bichlor., she asked me, while pouring a little into the palm of her hand, if it contained mercury. Upon replying that it did, she immediately washed her hands carefully, but too late to prevent the customary effects. In about a week she sent for me and showed me her hands, cracked and almost bleeding. Once since, having taken a bath in a bath-tub at a boarding-house, there was a more general exhibition of the poisonous effects of mercury upon her system, although the body was not as generally affected as when the mercury was taken internally. It was ascertained that an inhabitant of the boarding-house who was troubled with the unpleasant little insect, the pediculus pubis, had used mercurial ointment for its removal, and afterwards had taken a bath, which explained what seemed at first inexplicable. Hydrate of chloral produces when taken internally a deep red, congested spot upon the left wrist of this lady within twenty minutes after it is taken; this also is followed by the cracking and peeling off of the skin. I have no suggestion to make in regard to the mercury, which undoubtedly plays the part of an irritant poison. As regards the chloral, after having tried it twice with the same result, I hesitate to give it, fearing that if it will produce such a remarkable local congestion, the same thing might possibly occur in the brain.

CHICAGO, ILL. L. H. WATSON, M. D.

COMPARATIVE MORTALITY-RATES.

	Estimated Population, July 1, 1878.	Deaths during week ending July 6, 1878.	Annual Death-Rates per 1000 living.		
			For the Week.	For the Year 1877.	Mean for ten Years, '68-77.
New York.	1,093,171	665	31.63	23.42	28.71
Philadelphia.	876,118	411	24.39	18.80	21.54
Brooklyn.	549,438	312	29.53	21.51	25.50
Chicago.	460,000	136	15.37	17.83	22.39
Boston.	375,476	148	20.49	20.10	24.34
Providence.	100,000	52	27.04	18.81	19.20
Lowell.	55,798	23	21.43	19.09	22.50
Worcester.	54,937	23	21.78	14.07	22.30
Cambridge.	53,547	19	18.44	18.69	20.83
Fall River.	53,207	22	21.50	21.35	24.96
Lynn.	35,528	8	11.71	20.42	19.67
Springfield.	33,981	12	18.38	16.02	19.77
Salem.	27,140	7	13.41	20.38	21.15

BOOKS AND PAMPHLETS RECEIVED. — Antagonism of Alcohol and Diphtheria. By E. N. Chapman, A. M., M. D. Brooklyn. 1878.

Case of Hydrophobia. By J. P. Maynard, M. D., Dedham. (Reprinted from the Boston Medical and Surgical Journal, October 15, 1857.)

De quelques Accidents de l'Epilepsie et de l'Hystéro-Epilepsie. Par Émile Bovell. Paris. 1877.

The Application of Pressure in Diseases of the Uterus. By V. H. Taliaferro. Atlanta, Ga. (Reprint from the Transactions of the Medical Association of Georgia.)

Certain Symptoms of Nervous Exhaustion. By George M. Beard, M. D. (Reprint from the Virginia Medical Monthly, June, 1878.)

Litholopaxy, or Rapid Lithotrity with Evacuation. By Henry J. Bigelow, M. D., Professor of Surgery in Harvard University, etc. (Reprint.) Boston: A. Williams & Co. New York: William Wood & Co. 1878.

Horseback Riding from a Medical Point of View. By Ghislani Durant, M. D., Ph. D. New York: Cassell, Petter, and Galpin. 1878.